PERINATAL LESSONS FROM THE PAST

Michael Underwood, MD (1737–1820): physician-accoucheur of London

P M Dunn

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Underwood was the first physician-accoucheur to be appointed to the Royal College of Physicians in London. The same year, 1784, he published a textbook which did much to establish paediatrics as an emerging discipline in its own right. The book contains several original descriptions of childhood diseases.

Michael Underwood was born of respectable parents on the 29 September 1737. He received a good education, first at West Monsley School and then at Kensington in London. Planning to enter the medical profession, he came under the tuition of the eminent surgeon Sir Caesar Hawkins (sergeant-surgeon to George II), who introduced him as a house pupil to St George's Hospital, where he remained for several years. Later he expressed his indebtedness to this ''long residence in one of the largest and best conducted hospitals in the metropolis''. After a sojourn in Paris, Underwood became a member of the Surgeon's Company and established himself in practice in Margaret Street, Cavendish Square, combining surgery with the practice of obstetrics. Later he was appointed surgeon to the British Lying-in Hospital in London.[1–4]

In 1783 Underwood published a *Treatise upon ulcers of the legs, scrophulous sores and mammary abscesses*. It was republished in 1788. Then in 1784, having obtained the degree of doctor of medicine from a Scottish university, he became eligible along with several other practitioners in midwifery to be elected as one of the first of the new class of licentiates in midwifery of the Royal College of Physicians. A few years later, the College decided to discontinue this form of membership with the result that Underwood, having survived all his other contemporary members, became for some years the solitary *permissus ad artem obstetrician exercendam* on the College lists. From 1784, practicing from Great Marlborough Street and now physician rather than surgeon to the British Lying-in Hospital, Underwood published a second text: *A treatise on the diseases of children, with general directions for the management of infants from birth*[5] (fig 1). This book, dedicated to the Queen, was written for the laity as well as for the profession. In it he deplored the high infant mortality and wrote:

On the study of children's diseases[6]

> ''It has indeed been universally lamented, that in no age has the study of the disorders of children kept pace with the advancement of science; nor have the improvements in the practice of physic in the present century, produced as full and accurate accounts of them, as the diseases of adults … A very principal cause of the above-mentioned neglect, has arisen from an ancient idea … that as medical people can have but an imperfect knowledge of the complaints of children, from the inability of children to give any account of them, it is safer to trust the management of them to old women and nurses …
> … although infants can give no account of their complaints in the manner we receive information from adults, their diseases are all plainly and sufficiently marked by the countenance, the age, the manifest symptoms, and the faithful account given by the parent, or an intelligent nurse … Every distemper may be said, in some sense, to have a language of its own, and it is the business of a physician to be acquainted with it; nor do those of children speak less intelligibly than those of adults''.

Underwood's text contained many new descriptions of paediatric complaints including sclerema neonatorum (which became known as Underwood's disease) and also the first description of infantile paralysis. It brought him fame and distinction. Over the next 60 years his book went through 10 editions, seven during his lifetime and three more after his death edited by Samuel Merriman (1826), Marshall Hall (1835), and H Davies (1846). It was also published in France, Germany, and America.

The above extract and those that follow are taken from the 9th edition.

On infants apparently still born[6]

> ''I have, indeed, both at the Lying-in Hospital, and elsewhere, met with many instances of children born with very little, and others without even the smallest appearance of life; some of whom have remained entirely destitute of any sign of it, for more than a quarter of an hour, and yet have been happily restored. I pretend to little or no skill in this business, not generally practised, and can scarcely guess to what to attribute this success, unless it be an unwearied assiduity and perseverance in my attempts, whensoever there are no certain signs of death, till I

Correspondence to:
Professor Dunn,
Department of Child Health, University of Bristol, Southmead Hospital, Southmead, Bristol BS10 5BN, UK;
P.M.Dunn@bristol.ac.uk

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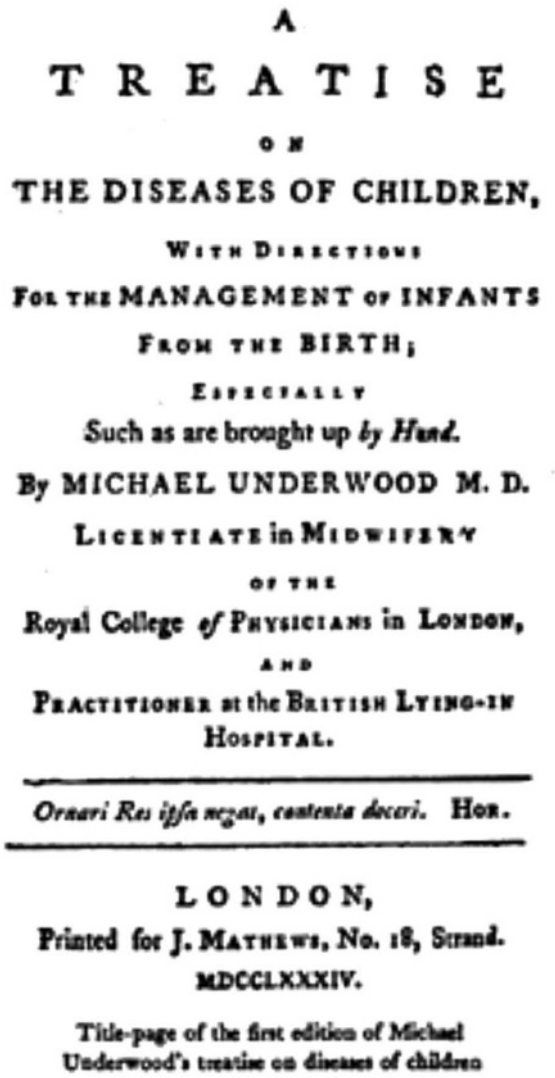

A

TREATISE

ON

THE DISEASES OF CHILDREN,

WITH DIRECTIONS

FOR THE MANAGEMENT OF INFANTS

FROM THE BIRTH;

ESPECIALLY

Such as are brought up *by Hand.*

By MICHAEL UNDERWOOD M. D.

LICENTIATE in MIDWIFERY

OF THE

Royal College *of* PHYSICIANS in LONDON,

AND

PRACTITIONER at the BRITISH LYING-IN HOSPITAL.

Ornari Res ipsa negat, contenta doceri. HOR.

LONDON,

Printed for J. MATHEWS, No. 18, Strand.

MDCCLXXXIV.

Title-page of the first edition of Michael Underwood's treatise on diseases of children

Figure 1 Frontispiece to Underwood's *Treatise on the diseases of children.*[5]

conceive nothing is possible to be expected from them.

… no benefit is to be expected from stroking the blood along the funis, or immersing the placenta in warm water; the foetal life being extinct, the recovery of the child will depend on the blood passing freely through the lungs, which it cannot do till the child is brought to breathe freely and forcibly; the continuance of which also is never secure till it begins to cry. To these ends, I have depended above all upon blowing into the trachea, through the mouth; which I am satisfied may be more effectually done by the mouth of the assistant being placed immediately upon the child's, than by means of a blow-pipe; although the air is certainly less pure; at the same time preventing the return of the air before it has entered the lungs, by the fingers of one hand placed at the angles of the mouth, and those of the other on each side of the nose. But I have sometimes imagined that I might attribute much of my success not only to the continuance of this, but to the manner of doing it: by attempting to imitate natural respiration, by forcing out the air I have thrown in, by a strong pressure against the pit of the stomach; thus alternately blowing in, and pressing out the air, for a long time together, omitting it only now and then, to make use of some of the above-mentioned means. I believe, however, that these means can do very little to insure the life of the child, until it begins not only to gasp, and that with shorter intervals, but also to breathe in a somewhat uniform manner.''

On familial infantile jaundice[6]

''There are not wanting evidences of this disease, both in the more slight and severe forms of it, being in some families hereditary … Mr. Pearson has favoured me with a very curious (example) which the reader cannot fail to be pleased with, as no such instance, I believe, is to be found upon record. I shall submit the account in his own words, and without any comment; as further experience is necessary to enable us to draw any practical inferences.

Mr. Pearson's account runs thus:

Mrs. J. had been the mother of eleven children; on nine of which the jaundice appeared a few days after they were born, and they all died within the period of a month after their birth. The tenth child lived six years, was then afflicted with the jaundice, and died. In May 1796, Mrs. J. was delivered of her eleventh child; on the third day after its birth, the skin became yellow, and the child was at the same time remarkably torpid and sleepy, and seemed to be slightly convulsed. On the following days, the colour of the skin often varied, being sometimes of a deeper yellow, and at other times nearly regaining its natural colour; the child continued, however, in the same languid and almost insensible state, but received nourishment, and sucked the breast of its mother, till within a few hours of its death, which took place on the ninth day. I opened the body of this child the day after it died, and shall now proceed to describe the appearances exhibited on dissection … The liver was almost twice its natural size … The gall-bladder was nearly filled with bile, of a deep yellow colour, and its ducts were permeable. The stomach was in a natural state, and the intestines were without any marks of disease. In the thorax, the lungs were of a healthy appearance. The heart seemed to be larger than common …''

This may be the first description of a case of Rh sensitisation. It seems likely that the 10th child in this family, who died with jaundice at the age of 6 years, had sustained Rh haemolytic hepatitis at birth.[7]

On congenital heart disease[6]

''These morbid deviations appearing in different parts, have in all the same tendency, viz. in a greater or less degree to obstruct the passage of the blood through the lungs, which in some instances has continued nearly the same as in the unborn foetus. The peculiarity is sometimes in the pulmonary artery which is constricted, or closed, as it rises from the right ventricle; at others, in the septum cordis, which has an unnatural opening, affording a free communication between the two ventricles; sometimes in the aorta arising equally from the anterior and posterior ventricles; and sometimes in the imperfect closure of the foramen ovale, or the canalis arteriosus …

The imperfections are owing entirely to an original malformation of parts, or to a deficiency in the powers of the system soon after birth; the only time in which that diversion to the circulation can take place, which nature

has intended upon the change made in consequence of respiration.

The precise time when this new mode of circulation should take place, is not attempted to be settled, the passage between the auricles, and that between the two great arteries, being open in children of very different ages; nor do both always close at the same time. It is conjectured, however, that this process ought to begin from the birth, as it is found to do in the remains of the vessels of the funis umbilicalis; so that, although the fetal apertures in the heart should not be actually impervious at the end of some months, it is imagined that some constriction has usually taken place, and that, at least, some check is given to the blood's passing from one side of the heart to the other, in the free manner it does in the foetus. This, it is natural enough to conceive, and I apprehend, is owing to a greater quantity of blood rushing into the lungs, in consequence of respiration, (which lessens the difficulty of entering that organ) by which means, a greater quantity flows into the left auricle from the pulmonary veins, which filling the part, prohibits an entry from the right. Upon the like principle, the aorta being more distended by a large quantity of blood from the left ventricle, does not allow the pulmonary artery to empty itself into it by the canalis arteriosus.

Whether the preternatural aperture be in the vessels, auricles, or ventricles … the constant symptoms attending it are a discolouration of the face and neck, with a sloe-blue, or leaden colour of the lips, such as is met with in some fits of asthma; and sometimes an unnatural coldness of the body. The discoloration almost always takes place very soon after birth, and is increased, and attended with difficulty of breathing, as often as the child is anywise agitated; whereby he is disposed to throw himself in a horizontal posture …

If the aperture be in the canalis arteriosus, children usually, but not always, sink very soon under the complaint, and for want, it is imagined, of a due portion of oxygen gas, owing to the full proportion of blood not passing through the lungs. But if the aperture be in the inferior parts of the heart, infants more commonly survive for months, or even for years; although some physiologists have conceived there may be the like disproportion of oxygenated blood … (these cases), however, can endure but little motion, the heart becoming thereby surcharged with blood, and respiration being rendered more difficult; hence also the blood is detained in the extremities, and the face, neck and hands, become particularly discoloured. Some time, indeed, before the patient sinks under the disease, the symptoms are aggravated, and almost the least motion endangers from suffocation.''

This may be the first medical description of congenital heart disease.

Michael Underwood's treatise[5] appeared first one year after the 4th edition of George Armstrong's essay on the diseases of children.[8] Villebrune, in his version of Underwood's text, published in Paris in 1786, accused him of stealing from Armstrong. Although Underwood had indeed acknowledged Armstrong's priority as an author on children's diseases, his account throughout its many editions did tend only to criticise and disparage Armstrong's views. Partly as a result of this, George Armstrong's great achievements on behalf of children remained forgotten in Britain until ''rediscovered'' by Still in 1931.[3] However, for all that, Underwood was clearly a skilful physician-accoucheur, and an excellent clinician. His textbook is modern in style and quality and may still be read with pleasure and advantage.

Soon after the Prince of Wales (the future George IV) had married, Dr Warren (physician-in-ordinary to George III) introduced Dr Underwood to him. After this introduction, Underwood was appointed physician to the Princess of Wales, and, in 1796, attended the birth of her daughter, the Princess Charlotte. Twenty years later Charlotte was to die after her own delivery. Her baby also died.

Underwood died at Knightsbridge on 14 March 1820 at the age of 84. He had never been a wealthy man, and his widowed daughter was left with insufficient provision. In 1824, in order to support her, friends published ''*Extracts from the diary of the late Michael Underwood, MD*''. It transpired that he kept a daily record of his life interspersed with meditations on various subjects, mainly religious, which extended to 122 volumes. It is indeed the source of most of the information we have on him.[6] From it we learn that, in the late 1790s, he became harassed by domestic anxieties and sorrows, and, in 1801, having become morbidly depressed, he imagined himself unfit for his professional duties, gave up work, and withdrew from society for a number of years. However, by 1807 he had sufficiently recovered to resume some work from his home, though the remainder of his life was spent mainly in seclusion, in tranquillity, and in pious resignation.

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